

MINNESOTA POLLUTION CONTROL AGENCY
Site Response Section
Division of Solid and Hazardous Waste



Request for Approval of a Response Order By Consent with Koch Refining Company
for the Purpose of Completing a Remedial Investigation and Feasibility Study
for the Koch Refining/N-ReN Hazardous Waste Site in Rosemount, Dakota County

October 22, 1985

ISSUE STATEMENT

Ground water beneath and in the area of the Koch Refining/N-ReN Site (Koch/N-ReN Site) located in Rosemount, Dakota County is contaminated as a result of the release of hazardous substances from the Koch/N-ReN Site. Koch Refining Company (Koch) and staff of the Minnesota Pollution Control Agency (MPCA) have negotiated a proposed Response Order By Consent (Order) under which Koch is required to conduct a Remedial Investigation and complete a Feasibility Study at the Koch/N-ReN Site. The MPCA staff recommend that the MPCA Board enter into the proposed Order.

I. BACKGROUND

In 1955, the Great Northern Oil Company was formed to construct and operate a petroleum refinery in the Pine Bend area of Rosemount, Minnesota. In 1969, Koch acquired majority ownership of the refinery. The refining facility was renamed Koch Refining Company in 1972. Koch purchased the North Star Chemical (Northstar), Inc., plant from N-ReN Corporation in 1980 and renamed it the Koch Sulfuric Acid Unit (KSAU). Refer to Attachment 2 for a map showing the location of these facilities.

The Great Northern Refinery and Koch operated an industrial lagoon wastewater treatment system on the Koch/N-ReN Site just north of the refining complex. Northstar also operated an unlined industrial wastewater lagoon in the Pine Bend area. Because it was likely that wastewater from the lagoons may have contaminated the ground water, several ground water investigations were conducted in the Pine Bend area by private consultants, the Minnesota Department of Health, the MPCA, and the U.S. Geological Survey between 1971 and 1976. The findings of these investigations indicated that ground water downgradient of the Pine Bend area was contaminated. In 1972, the MPCA entered into Stipulation Agreements with Koch and Northstar which required them, among other activities,

to cease the discharge of wastewater to their treatment lagoons. As a result, Koch and Northstar each constructed new wastewater treatment plants in place of the offending lagoons. The Stipulation Agreements did not address the clean up of contaminated ground water.

In early 1984, MPCA staff sampled residential wells downgradient of the Koch/N-ReN Site. Analytical results indicated the presence of a number of volatile organic compounds.

In January 1985, the MPCA Board issued a Request for Response Action (RFRA) to Koch regarding contamination at the overall Koch/N-ReN Site, including the Koch sulfuric acid unit purchased by Koch from N-ReN in 1980. At the same time a RFRA was issued to N-ReN for the KSAU. However, negotiations since the issuance of the RFRA have been with Koch alone.

II. DISCUSSION

MPCA staff have had numerous meetings with representatives of Koch. These meetings have resulted in the successful negotiation of the attached proposed Response Order By Consent. Major features of the Order are:

A. Remedial Investigation

Koch is required to conduct a Remedial Investigation (RI) at the Koch portion of the Koch/N-ReN Site in accordance with Exhibit A of the proposed Order. The major purpose of the RI is to accurately define the extent and magnitude of the ground water contamination at, beneath and in the vicinity of the Koch portion of the Koch/N-ReN Site.

B. Feasibility Study

Koch shall design, propose, undertake and report upon a Feasibility Study (FS) for the Koch portion of the Koch/N-ReN Site. The purpose of the FS is to identify and assess Response Action Alternatives available to abate or

minimize the release or threatened release of hazardous substances as identified through the RI.

C. Limited Remedial Investigation

The Consent Order provides a time lapse of 60 days to allow N-ReN to agree to conduct a Limited Remedial Investigation (LRI) at the KSAU portion of the Koch/N-ReN Site in accordance with Exhibit B of the proposed Order. If N-ReN Corporation refuses to conduct the LRI at the KSAU portion of the Koch/N-ReN Site within 60 days of the effective date of the Order, Koch shall undertake this work. The purpose of the LRI, whether conducted by Koch or N-ReN, will be to determine whether a full RI, FS and Response Actions will be necessary, at the KSAU portion of the Koch/N-ReN Site.

C. Recovery of Expenses

Koch has agreed to pay into the Environmental Response, Compensation and Compliance Fund a sum of \$21,404.65 as reimbursement of MPCA expenses through August 17, 1985. In addition, Koch has agreed to reimburse the fund for future expenses incurred by the MPCA as a result of activities conducted in implementing the proposed Order.

The proposed Order does not include the development of a remedial action plan (RAP) or implementation of a remedial action (RA). Koch Refining Company is currently applying for a Resource Conservation and Recovery Act (RCRA) permit for the hazardous waste landfarm they operate on the Koch/N-ReN Site. Under RCRA reauthorization of 1984, Koch Refining Company must complete RI/FS work, develop a RAP, and implement RA(s) to deal with any existing ground water contamination in order to receive and comply with any RCRA permits. Although Koch Refining Company would be required to complete the actions specified in the proposed Order, it may be a considerable period of time before the RCRA permit

could be issued for the Koch Refining Company's landfarming operation. In considering the urgency of the situation, the MPCA staff feel that execution of the proposed Order will allow the RI/FS work to be completed during the RCRA permitting process. The decision on the appropriate process to deal with the RAP and RA can be made in the future when the timing of administrative actions (e.g., permit issuance) under RCRA and State and Federal Superfunds are better defined.

III. CONCLUSION

Koch and MPCA staff members have negotiated the attached proposed Order. The MPCA staff believes that the completion of the LRI at the KSAU portion of the Koch/N-ReN Site and the RI and FS at the remainder of the Koch/N-ReN Site as required by the Order are necessary first steps toward protecting the public health, welfare and environment in the area of the Koch/N-ReN Site.

IV. RECOMMENDATIONS

The MPCA staff recommends that the MPCA Board approve the proposed Response Order By Consent between Koch and the MPCA for the purpose of completing a Remedial Investigation/Feasibility Study at the Koch/N-ReN Site located in Rosemount, Dakota County, Minnesota, with the exception of the KSAU portion of the Koch/N-ReN Site where a limited Remedial Investigation will be conducted, by adopting the suggested staff resolution.

SUGGESTED STAFF RESOLUTION

WHEREAS, in issuing the Request for Response Action to the Koch Refining Company on January 22, 1985, the Minnesota Pollution Control Agency determined that Koch Refining Company was responsible for the release of hazardous substances from a facility (the Koch Refining/N-ReN Site); and

WHEREAS, the factual basis upon which those determinations were made is set forth in the January 22, 1985 Request for Response Action; and

WHEREAS, the Minnesota Pollution Control Agency staff has negotiated a Response Order By Consent with Koch Refining Company;

NOW THEREFORE BE IT RESOLVED, that the Minnesota Pollution Control Agency approves and adopts the Response Order By Consent between the Minnesota Pollution Control Agency and Koch Refining Company which provides for completion of a Remedial Investigation/Feasibility Study at the Koch portion of the Koch/N-ReN Site in Rosemount and a Limited Remedial Investigation at the Koch Sulfuric Acid Unit portion of the Koch/N-ReN Site.

BE IT FURTHER RESOLVED, that the Chairman and the Director are hereby authorized to execute the Response Order By Consent on behalf of the Minnesota Pollution Control Agency.

STATE OF MINNESOTA
MINNESOTA POLLUTION CONTROL AGENCY

In the matter of
Koch Refining Company
Rosemount, Minnesota

RESPONSE ORDER BY CONSENT

Proceedings Under Sections 17
and 18 of the Minnesota
Environmental Response and
Liability Act, Minn. Stat. Ch. 115B.

IT IS HEREBY STIPULATED AND AGREED by and between the parties hereto as follows:

I.

Jurisdiction

This RESPONSE ORDER BY CONSENT (Order) is issued pursuant to the authority vested in the Minnesota Pollution Control Agency (MPCA) by the Environmental Response and Liability Act of 1983 (ERLA), Minn. Stat. Ch. 115B, and by Minn. Stat. Chs. 115 and 116.

On the basis of the results of the testing and analyses described in the Statement of Facts, infra, and MPCA files and records, the MPCA has determined that (1) the property described as the "Koch Site" 1/ constitutes a facility within the meaning of Minn. Stat. § 115B.02, Subd. 5; (2) hazardous substances and pollutants and contaminants, within the meaning of Minn. Stat. §§ 115B.02,

1/ The term "Koch Site" as used in this Order refers to all personal and real property which makes up the site listed on the National Priorities List as the Koch/N-Ren Site. Unless otherwise explicitly stated, reference to the term Koch Site includes both the property which constitutes the Koch Refining Company in Rosemount, Minnesota, and the property which constitutes the Koch Refining Company Sulfuric Acid Unit facility in Rosemount, Minnesota.

Subds. 8 and 13, have been detected at the Koch Site; (3) there have been releases and there may continue to be a threat of releases of hazardous substances, pollutants and contaminants within the meaning of Minn. Stat. § 115B.02, Subd. 15, from the Koch Site; (4) with respect to the releases from the Koch Site, Koch Refining Company (Koch) is a responsible person within the meaning of Minn. Stat. § 115B.03; (5) the actions to be taken pursuant to this Order are reasonable and necessary to protect the public health or welfare or the environment; and, (6) a reasonable time for beginning and completing the actions required by this Order has been provided.

In executing this Order, Koch is settling a disputed matter between itself and the MPCA and does not admit liability or responsibility for any releases or threatened releases of hazardous substances or pollutants or contaminants which are the subject of this Order. By its agreement to this Order, Koch voluntarily submits to the jurisdiction of the MPCA to enter into this Order. For the purposes of enforcing and resolving any disputes concerning implementation of this Order, Koch waives any right to deny any factual or legal determination upon which the MPCA's jurisdiction to enter into this Order is based, including the MPCA's determination that the petroleum exclusion set forth in the definition of hazardous substance (Minn. Stat. § 115B.02) does not exclude from the MPCA's jurisdiction under Minn. Stat. chapter 115B the substances which are the subject of this Order.

Except as otherwise provided in this Part, Koch retains the right to dispute any of the factual or legal determinations made herein by the MPCA, including the right to challenge whether MPCA modifications and orders issued under this Order are reasonable and necessary to protect the public health or welfare or the environment. For any purpose other than the enforcement of

this Order, Koch retains the right to challenge any factual or legal determination made by the MPCA and to raise any available defense to liability or responsibility for the release of hazardous substances or pollutants or contaminants; in particular, for any purpose other than the enforcement of this Order, Koch retains the right to challenge, without limitation, the jurisdictional determinations made herein, any determination that a pollutant or contaminant presents an imminent and substantial danger to the public health or welfare or the environment, any determination that the petroleum exclusion of Minn. Stat. § 115B.02, Subd. 8 is not applicable to substances detected at the Koch Site, and any determination that response actions other than those required by this Order are reasonable and necessary.

Notwithstanding any of the foregoing, Koch specifically agrees to undertake all actions required of it by the terms and conditions of this Order within the time frames specified herein.

II.

Parties

This Order shall apply to and be binding upon the following parties:

1. Koch Refining Company (Koch); and,
2. The Minnesota Pollution Control Agency (MPCA).

III.

Statement of Facts

For purposes of this Order, the following constitutes a summary of the facts upon which this Order is based. None of the facts related herein shall be considered admissions by any party with respect to any claim made by any person, except for claims brought by the parties against each other to implement or enforce the requirements of this Consent Order.

KOCH REFINING COMPANY

1. In 1955, the Great Northern Oil Company was formed to construct and operate a petroleum refinery in the Pine Bend area of Rosemount, Minnesota. In 1969, Koch acquired majority ownership of the refinery. The facility was renamed the Koch Refining Company in 1972. Among other property, the Koch Site consists of the property originally occupied by the Great Northern Oil Company facility.

2. The Great Northern Oil Company and Koch operated an industrial lagoon wastewater treatment system on the Koch Site just north of the refining complex. Wastewater from the lagoons may have contaminated the groundwater. In 1972, the MPCA entered into a Stipulation Agreement with Koch which required Koch, among other activities, to cease the discharge of wastewater to the last treatment lagoon. Koch constructed a new wastewater treatment plant (WWTP) in 1977 with steel tanks and concrete basins. This WWTP is permitted under the MPCA's NPDES (National Pollutant Discharge Elimination System) permit program. The WWTP collects, treats and discharges surface runoff as well as process wastewater.

3. In 1975 and 1981, Koch treated the lagoon residuals by chemical fixation which yielded a non-hazardous material suitable for dike construction. The 1981 chemical fixation was permitted by the MPCA via Permit HW-1. A hazardous waste permit was required because the lagoon residuals were a listed hazardous waste under the then existing MPCA Hazardous Waste rules. The remaining lagoon soils were tested for hazardous characteristics in 1984 and were determined not to be hazardous waste under either EPA or MPCA rules.

4. Koch has abated other potential sources of surface water infiltration by paving process areas, stormwater basins and the firewater pond. In 1978

Koch constructed a land treatment facility. In 1980, the facility received Interim Status from U.S. EPA to operate until a final permit is issued. The Part B permit application was submitted to MPCA and EPA in June, 1984. MPCA is evaluating this application and will require a treatment demonstration as part of the application process.

KOCH REFINING COMPANY SULFURIC ACID UNIT (KSAU)

5. In 1959, North Star Chemical, Inc. (North Star) was formed to produce sulfuric acid from sulfur and spent sulfuric acid from the Koch Refining Company. North Star merged into N-ReN Corporation (N-ReN) in 1974. In 1980, Koch purchased the North Star sulfuric acid facility from N-ReN and renamed the facility the Koch Refining Company Sulfuric Acid Unit (KSAU facility). Among other property, the Koch Site includes the KSAU facility and the property occupied by the KSAU facility.

6. North Star also operated an unlined industrial wastewater lagoon. Wastewater from this lagoon is also believed to have contaminated ground water in the Pine Bend area. In 1972, the MPCA entered into a Stipulation Agreement with North Star which required North Star to treat its wastewater for discharge and to cease the disposal of wastewater to the lagoon. North Star provided for treatment through N-ReN's wastewater treatment plant. The Stipulation Agreement did not provide for clean up of contaminated ground water.

INVESTIGATIONS

7. Several groundwater investigations were conducted in the Pine Bend area by private consultants, the Minnesota Department of Health (MDH), the MPCA, and the U.S. Geological Survey between 1971 and 1976. The findings of

these investigations were that groundwater downgradient (toward the Mississippi River) of the Pine Bend area was high in specific conductance, contained phenols, and had elevated concentrations of several major ions. The analytical methods used did not detect volatile organic compounds. The test procedures available at that time could not detect part per billion concentrations (PPB).

8 In early 1984, MPCA staff sampled residential wells downgradient of the Koch Site. New analytical techniques detected the presence of volatile organic compounds at Parts per Billion (PPB) and Parts per Trillion (PPT) levels. Analyses of these samples indicated contamination by volatile organic compounds including: 1,1,1-Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethylene; Methylene Chloride; 1,1-Dichloroethane; 1,2-Dichloroethane; Di-Isopropyl Ether; Tetrachloroethane; 3,3-Dimethyl-1-Butene; (E)-4-Methyl-2-Pentene; (E)-3-Methyl-2-Pentene; 2,3-Dimethyl-1-Pentene; 4,4-Dimethyl-2-Pentene; 3-Ethyl-2-Pentene; 2-(Ethylthio)-Propane; 2,3-Dimethyl-2-Pentene; 2,3,4-Trimethyl-2-Pentene; 4-Methyl-3-Heptene; 2,2'-Thiobis-Propane; 2,3-Di-methyl-2-Hexene; Methyl Isobutyl Ketone; Benzene; Chloroform; Carbon Tetrachloride; Naphthalene; Chrysene; Anthracene; and Phenanthrene.

REQUEST FOR RESPONSE ACTION

9. In June 1984, the MPCA submitted a recommendation to the U.S. Environmental Protection Agency (EPA) that the Koch Site have a Hazard Ranking System (HRS) Score of 31 and recommended that the Koch Site be placed on the U.S. EPA's National Priority List (NPL). Pursuant to Section 105 (8)(b) of the Comprehensive Environmental Response, Compensation, and

Liability Act (CERCLA), the Koch Site was proposed for listing on the NPL by publication in the Federal Register on October 15, 1984, Federal Register Vol. 49, No. 200.

10. In January, 1985, the MPCA issued a Request for Response Action to Koch regarding contamination from the Koch Site. At that time, Koch had already hired a consultant and initiated an investigation under a program reviewed by MPCA staff.

COORDINATION WITH OTHER INVESTIGATIONS

11. The presence of hazardous substances and pollutants and contaminants have been detected at several other sites in the Pine Bend area, including the University of Minnesota Rosemount Research Center and the Pine Bend Landfill/Crosby-American Properties. Investigations of other Pine Bend area sites are currently underway. Information obtained from both those other investigations and from the work to be performed under this Order should be reviewed and coordinated in the process of establishing a full remedy for the contamination at the Koch Site, consistent with the remedy to be established for other sites in the Pine Bend area.

IV.

Definitions

Unless otherwise explicitly stated, the definitions provided in Minn. Stat. Ch. 115B shall control the meaning of the terms used in this Order.

V.

Scope of Order

This Order shall govern the following:

1. A Remedial Investigation and Limited Remedial Investigation as described in Part VI and Exhibits A and B to this Order;
2. A Feasibility Study as described in Part VII and Exhibit A to this Order; and
3. Reimbursement of the MPCA's expenses as described in Part XXIII.

Response actions other than those described above are not within the scope of this Order. Specifically, with respect to the KSAU portion of the Koch Site, this Order provides only for a Limited Remedial Investigation and does not cover either a full Remedial Investigation nor a Feasibility Study. In addition, this Order does not cover any remedial design work which may be necessary at any portion of the Koch Site (including the KSAU portion), nor does it cover the implementation of any permanent remedy at any portion of the Koch Site.

VI.

Remedial Investigations

Appended to and made an integral and enforceable part of this Order are two Exhibits, Exhibit A and Exhibit B, which together set forth a program and schedule for the implementation of a Remedial Investigation for the Koch Site. Exhibit A describes the Remedial Investigation for the portion of the Koch Site occupied by the Koch Refining Company facility and Exhibit B describes a Limited Remedial Investigation for the portion of the Koch Site occupied by the KSAU facility.

Koch shall complete the Exhibit A Remedial Investigation of the Koch Site in accordance with the requirements and time schedules set forth in Exhibit A.

Koch shall complete the Exhibit B Limited Remedial Investigation of the Koch Site in accordance with the requirements and time schedules set forth in Exhibit B unless, within sixty (60) days of the effective date of this Order, N-Ren commits, to the satisfaction of the MPCA Director, to perform the requirements of Exhibit B substantially within the time and manner set forth in Exhibit B. If N-Ren so commits, the requirements of Exhibit B shall be suspended as to Koch and Koch shall not be required under this Order to conduct the Limited Remedial Investigation set forth in Exhibit B. If, within sixty (60) days of the effective date of this Order, N-Ren does not so commit, Koch shall complete the Exhibit B requirements. In the sole discretion of the MPCA Director, this sixty (60) day time period may be extended if it appears that a satisfactory commitment from N-Ren can be obtained shortly after the running of the sixty (60) day period. During the sixty (60) day time period, the MPCA shall use its best efforts to obtain an agreement from N-Ren, satisfactory to the MPCA Director, to perform as required by Exhibit B.

VII.

Feasibility Study

Koch shall prepare a Feasibility Study (FS) for the Koch Site in accordance with the requirements and time schedules set forth in Exhibit A to this Order.

VIII.

Resolution of Disputes and Review and Approval of Submittals

A. Except for disputes regarding the approval of submittals (which are resolved pursuant to Paragraph B, below), disputes regarding the meaning of any part of this Order or the implementation of response actions shall be resolved as follows. If a dispute arises, Koch shall provide the MPCA Director with a written statement supporting its position. The MPCA Director shall issue a proposed order resolving the issues in dispute. Within ten (10) days of receipt of the proposed order, Koch may request that the MPCA Board review the issues in dispute. If Koch elects not to request MPCA Board review, the MPCA Director's order shall govern the interpretation and implementation of this Order with respect to the issues in dispute. If MPCA Board review is requested, the MPCA Board shall consider the issues in dispute at either its next regularly scheduled meeting or at a special meeting, subject to the MPCA Board's notification procedures, and shall issue an order with respect to the dispute. The order shall be considered a final administrative action of the MPCA regarding the issues in dispute and may be appealed to a court of appropriate jurisdiction. Unappealed orders of the MPCA Board shall govern the interpretation and implementation of this Order with respect to the issues in dispute.

B. In the event there is a dispute between the MPCA and Koch regarding any submittal, document, report, or schedule (collectively "submittal"), for which approval is required by this Order or its Exhibit, or regarding any determination, modification or order by the MPCA Director or MPCA Board, the dispute shall be resolved in the following manner.

1. The MPCA Board shall review each submittal made by Koch as required by this Order within thirty (30) calendar days of receipt and shall notify Koch in writing by the thirty-first calendar day, or the first working day thereafter, of his approval, disapproval, or modification of the submittal. In the event the submittal requires approval and is approved, it shall become an integral and enforceable part of this Order. In the event that the submittal requires approval and is disapproved in whole or part, the MPCA Director shall notify Koch of the specific inadequacies in writing, and shall state the necessary amendments or revisions and the reasons therefor. In the event that the submittal is modified, the MPCA Director shall notify Koch of the specific modification(s) made to the submittal and the reason(s) therefor.

2. Within fourteen (14) calendar days of receipt of any notice of disapproval or modification, or on the first working day thereafter, Koch shall (a) submit revisions to correct the inadequacies; (b) respond in writing to the modification(s); or, (c) state in writing the reasons why the submittal, as originally submitted, should be approved.

3. If, within fourteen (14) calendar days from the date of Koch's submittal under B.2., above, or the first working day thereafter, the parties have not reconciled all issues in dispute with respect to said submittal, the MPCA Director shall propose modifications in the submittal as he deems necessary.

4. Koch may, within ten (10) days of receipt of the proposed modifications, request that the MPCA Board review the issues in dispute. If Koch elects not to request MPCA Board review, the MPCA Director's proposed

modifications shall become an integral and enforceable part of this Order. If MPCA Board review is requested, the MPCA Board shall consider the issues in dispute at either its next regularly scheduled meeting or at a special meeting, subject to the MPCA Board's notification procedures, and shall issue an order with respect to the dispute. The order shall be considered a final administrative action of the MPCA regarding the issues in dispute and may be appealed to a court of appropriate jurisdiction. Unappealed orders of the MPCA shall become integral and enforceable parts of this Order.

5. All submittals or modifications thereto shall be technologically feasible, reasonable and necessary, and in accordance with sound engineering practices.

6. The MPCA and Koch shall provide the opportunity to consult with each other during the review of submittals under this Part.

C. In reviewing all submittals, making any determinations or modifications, or issuing any order, the MPCA shall comply with the requirements of Minn. Stat. § 116.07, subd. 6 (1984).

D. During the resolution of any dispute under A and B above, and during any subsequent judicial proceedings, Koch shall continue to implement those portions of the Remedial Investigation, Limited Remedial Investigation and Feasibility Study which are covered by this Order and which the MPCA Director determines pursuant to this Part are not the subject of dispute and can be reasonably implemented pending final resolution of the issues in dispute.

IX.

Permits

A. Nothing in this Order is intended to alter the terms and conditions of any existing state or federal permits covering activities at Koch Refining Company's Rosemount facility.

B. The implementation of this Order may require the issuance of new governmental permits, authorizations or orders (hereinafter referred to as "permit") by the MPCA or other agencies. This Order is based upon the expectation that the terms and conditions of said permits will be issued consistent with the response activities contained in this Order and in Exhibits A and B thereto.

C. Koch shall notify the MPCA Director of each non-MPCA permit which is needed to implement the requirements of this Order and the Exhibits thereto as soon as Koch becomes aware of the need for the permit. Koch shall provide the MPCA Director with a copy of each permit application at the time that the application is submitted to the entity issuing the permit.

D. If a permit is not issued, or is issued or is renewed in a manner which is materially inconsistent with the requirements of the approved Remedial Investigation (RI), Limited Remedial Investigation (LRI) or Feasibility Study (FS), Koch may notify the MPCA Director of its intention to propose modifications to the RI, LRI or FS. Notification by Koch of its intention to propose modifications must be submitted within seven (7) days of receipt by Koch of notification that (1) a permit will not be issued; (2) a permit has been issued or reissued; or (3) a final judicial determination with respect to issuance of a permit has been entered. Within thirty (30) days

from the date it submits its notice of intention, Koch shall submit to the MPCA Director its proposed modifications with an explanation of its reasons in support thereof.

E. The MPCA Director shall review and approve, disapprove or modify Koch's proposed modifications in accordance with Part VIII of this Order. If Koch submits proposed modifications prior to a final judicial determination of any appeal taken on a permit needed to implement this Order, the MPCA Director may elect to delay review of the proposed modifications until after such final judicial determination is entered. If the MPCA Director elects to delay review, Koch shall continue implementation of this Order as provided in Paragraph F of this Part.

F. During any judicial review of any permit needed to implement this Order or during review of any of Koch's proposed modifications as provided in Paragraph E, above, and during any subsequent judicial proceedings taken in accordance with the provisions of Part VIII, Koch shall continue to implement those portions of the RI, LRI and FS which are not the subject of dispute and which the MPCA Director determines can be reasonably implemented pending final resolution of the issues in dispute. Such action by Koch shall be considered compliance with this Order and no payments, penalties, or other enforcement action shall result from any delays attributable to Koch's good faith exercise of its rights under this Part.

X.

Creation of Danger

In the event the MPCA Director or Koch determines that activities implementing or in noncompliance with this Order, or any other circumstances or activities, are creating a danger to the health or welfare of the people on

the Koch Site or in the surrounding area or to the environment, the MPCA Director or Koch may stop further implementation of this Order for such period of time as needed to abate the danger. During any stoppage of work under this Part, Koch's obligation with respect to the work ordered to be stopped shall be suspended and the time periods for performance of that work, as well as the time period for any other work dependent upon the work which was stopped, shall be extended, pursuant to Part XXVIII of this Order, for such period of time as the MPCA Director or MPCA Board determines is reasonable under the circumstances.

XI.

Reporting

Koch shall submit to the MPCA Director written progress reports which describe the actions which Koch has taken during the previous quarter to implement the requirements of this Order. Progress reports shall also describe the activities scheduled to be taken during the upcoming quarter. Progress reports shall be submitted by the tenth day of the third month following the effective date of this Order and each third month thereafter (quarterly). The progress reports shall include a detailed statement of the manner and extent to which the requirements and time schedules set out in Exhibit A and Exhibit B to this Order are being met. Koch shall indicate and propose in the quarterly reports any additional activities it believes to be necessary which are not included in the approved Remedial Investigation, Limited Remedial Investigation and Feasibility Study work plans and shall describe the impact of the additional activities on the other activities

conducted pursuant to this Order. The MPCA Director may, in his discretion, direct that reports be submitted at extended intervals or that no further reports be submitted.

XII.

Notification

Unless otherwise specified, progress reports and any other documents submitted by Koch pursuant to this Order shall be hand delivered or sent by certified mail, return receipt requested and addressed to:

Bruce S. Davis, Project Leader
Division of Solid and Hazardous Waste
Minnesota Pollution Control Agency
1935 West County Road B-2
Roseville, Minnesota 55113

Documents required by the Order to be sent to Koch shall be sent certified mail, return receipt requested and shall be addressed as follows unless Koch specifies otherwise:

Thomas W. Segar
Chief Environmental Engineer
P.O. Box 64596
St. Paul, Minnesota 55164

XIII.

Project Leaders

The MPCA and Koch shall each designate a Project Leader and Alternate for the purpose of overseeing the implementation of this Order. The MPCA Project Leader is Bruce S. Davis; the MPCA Alternate is Robert Karls. The Koch Project Leader is Thomas W. Segar; the Koch Alternate is R. V. Knutson. Either party may change its designated Project Leader or Alternate by notifying the other party, in writing, of the change. To the maximum extent

possible, communications between Koch and the MPCA concerning the terms and conditions of this Order shall be directed through the Project Leaders. Each Project Leader shall be responsible for assuring that all communications from the other Project Leader are appropriately disseminated and processed. As used in this Order, reference to the term "Project Leader" is also intended to refer to the Alternate and such other designees as the parties inform each other.

The Project Leaders and Alternates shall have the authority to (1) take samples or direct that samples be taken; (2) direct that work stop for a period not to exceed 72 hours whenever a Project Leader or Alternate determines that activities at the Koch Site may create a danger to public health or welfare or the environment; (3) observe and make such other reports on the progress of the work as the Project Leader or Alternate deems appropriate; (4) review records, files and documents relevant to this Order; and (5) jointly make or authorize minor field modifications in Exhibit A, Exhibit B, or in techniques, procedures or design utilized in carrying out this Order which are necessary to the completion of the project. Any field modifications shall be approved orally by both Project Leaders. Within forty-eight (48) hours following the modification, the Project Leader who requested the modification shall prepare a memorandum detailing the modification and the reasons therefor and shall provide or mail a copy of the memorandum to the other Project Leader(s).

The MPCA and Koch Project Leaders or Alternates shall either be on-site or available on-call during all hours of work. The absence of any Project Leader from the Site shall not be cause for stoppage of work.

XIV.

Sampling and Data Availability

The MPCA Director and Koch shall make available to each other the results of sampling, tests or other data generated by either party, or on their behalf, with respect to the implementation of this Order. Any public information obtained pursuant to Part VI of this Order or otherwise, which concerns ongoing studies of other contaminated areas in Rosemount will be available for Koch to review and copy at the MPCA offices. At the request of either party, the other party shall allow split or duplicate samples to be taken from any sampling or testing conducted during the implementation of this Order. The party taking samples shall endeavor to notify the other party's Project Leader or Alternate not less than five (5) days in advance of any sample collection. If it is not possible to provide five (5) days prior notification, the party taking samples shall notify the other party's Project Leader or Alternate as soon as possible after becoming aware that samples will be collected.

XV.

Retention of Records

Koch shall retain in its possession all records and documents related to the disposal of or contamination by hazardous substances, pollutants or contaminants at the Koch Site and all final reports, field notes and data related to the implementation of this Order. Koch shall preserve these records, documents, reports and data for a minimum of three years after the termination of this Order despite any document retention policy to the contrary. In accordance with the requirements of Minn. Stat. § 15.17 (1984),

the MPCA shall maintain its records related to the release or threatened release of hazardous substances, pollutants or contaminants at or in the vicinity of the Koch Site.

XVI.

Access

The MPCA or its authorized representatives shall have authority under this Order to enter the Koch Site during normal refinery business hours and normal refinery operations for the purposes of inspecting records, operating logs and contracts relevant to the implementation of this Order; reviewing the progress of Koch in implementing this Order; conducting such tests as the MPCA Director or his Project Leader deems necessary pursuant to this Order; and verifying the data submitted to the MPCA by Koch. If the MPCA or its authorized representatives wish to enter the Koch Site for the purposes listed above at times other than normal business hours, the MPCA shall so notify Koch's Project Leader or Alternate prior to the desired time of entry. Koch shall honor all reasonable requests for access by the MPCA conditioned only upon presentation of proper credentials and agreement to abide by Koch's safety regulations, a copy of which is appended to this Order as Exhibit C.

For property which is not owned by Koch, Koch shall use its best efforts to obtain access to property upon which Koch, its contractors, and the MPCA will be required to enter or conduct work in order to carry out the terms of this Order. Koch shall provide the MPCA with a copy of any such access

agreement. Koch shall not be required to pay unreasonable access fees as part of its efforts to obtain access.

If Koch is unable to obtain access to property not owned by Koch, the MPCA agrees to exercise its authority under Minn. Stat. § 115B.17, subd. 4 (1984) to obtain access. If the MPCA is required to exercise such authority, Koch shall submit to the MPCA, prior to commencement of work at the property not owned by Koch, a list of the persons who will be required to enter the property not owned by Koch. If the MPCA is required to seek a court order to obtain such access, the MPCA may describe the persons on the list as "agents" of the MPCA so that access may be granted under Minn. Stat. § 115B.17, subd. 4. However, for all other purposes (including the occurrence of any other situation in which the legal relationship between the MPCA and other persons may need to be described or the performance of work under this Order), the MPCA and Koch agree that Koch, its officers, employees, agents and contractors are not the agents or employees of the MPCA and shall not be treated as such.

XVII.

Photographs

MPCA personnel may take such photographs as are reasonable and necessary and which relate to the subject of this Order. Prior to taking any photographs, the MPCA Project Leader shall notify Koch's Project Leader that photographs will be taken at the Koch Site. Koch's Project Leader shall notify security personnel at the Koch Site that MPCA personnel have permission to bring cameras onto and to take photographs at the Koch Site. The MPCA shall honor all reasonable requests by Koch personnel to avoid photographing

areas which may reveal proprietary information so long as the MPCA is able to do so and still obtain photographs of the area under investigation.

Prior to placing any photographs in the public files of the MPCA, the MPCA shall, at Koch's expense, send a print of the photograph to Koch. The MPCA shall maintain as confidential the photographs for thirty (30) calendar days after it mails the print to Koch.

Koch, pursuant to Part XXII, may request that any photograph containing information which may be claimed as confidential be so classified by the MPCA. If, within thirty (30) calendar days after the MPCA mails photographs to Koch, Koch does not submit a request for confidentiality pursuant to Part XXII, the photographs so mailed to Koch will be classified as public.

XVIII.

Hold Harmless Agreement

Koch agrees to indemnify and save and hold the MPCA, its agents and employees harmless from any and all claims or causes of action arising from or on account of acts or omissions of Koch, its officers, employees, agents, or contractors in implementing the activities conducted pursuant to this Order; provided, however, that Koch shall not indemnify the MPCA nor save nor hold its employees and agents harmless from any claims or causes of action arising out of the acts or omissions of the MPCA, or its employees and agents.

Koch shall have the right to control the defense against any claim or cause of action, or portion thereof, under this Part if Koch agrees that this Part requires it to indemnify and hold harmless the MPCA with regard to the claim or cause of action, or portion thereof. In such circumstances, the MPCA

agrees to assist Koch in the defense of the claim or cause of action to the extent that the defense of the claim or cause of action is not inconsistent with this Order.

XIX.

Other Claims

Nothing herein is intended to release any claims, causes of action or demands in law or equity against any person, firm, partnership or corporation not a signatory to this Order for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, disposal or release of any pollutant, contaminant or hazardous substances at, to, or from the Koch Site. Nothing herein shall be construed to affect, as between Koch and N-Ren, the indemnification agreement between Koch and N-Ren.

Neither party hereto shall be held as a party to any contract entered into by the other party to implement the requirements of this Order.

XX.

Other Applicable Laws

All actions required to be taken pursuant to this Order shall be undertaken in accordance with the requirements of all applicable local, state and federal laws and regulations, including laws and regulations related to occupational safety and health. In the event there is a conflict in applicable federal or state laws or regulations, the more stringent of the conflicting provisions shall apply.

XXI.

Other Sources

The MPCA recognizes that hazardous substances, pollutants or contaminants may have been released from sources upgradient from the Koch Site and that these releases may contribute to contamination of groundwater at or near the Koch Site. In order to ensure that an appropriate remedy for the Koch Site can be fully implemented, the MPCA agrees to take, pursuant to authority granted by Minn. Stat. Chapter 115B, all actions it deems appropriate to determine the source(s) of the contamination and the persons responsible for identified releases contributing to contamination at the Koch Site.

XXII.

Confidential Information

Koch may assert under Minn. Stat. §§ 13.03, 13.37 and 116.075 a business confidentiality claim covering all or part of the information requested by this Order or any photographs taken as a result. Analytical data such as data on hazardous substances, wastes, soil, surface water or groundwater conditions shall not be claimed as confidential by Koch. Information determined to be confidential by the MPCA Director shall be afforded protection as provided in Minn. Stat. Ch. 13 and Minn. Stat. § 116.075. Except for photographs for which a special procedure is set forth in Part XVII, if no claim of confidentiality accompanies the information when it is submitted by Koch to the MPCA Director, the information may be made available to the public by the MPCA Director without further notice to Koch.

XXIII.

Recovery of Expenses

Within thirty (30) days of the effective date of this Order, Koch shall pay into the Environmental Response, Compensation and Compliance Fund of the Treasury of the State of Minnesota the sum of \$21,404.65, as reimbursement of the MPCA's expenditures incurred in connection with the investigation of the Koch Site. Payment of this sum shall be in full and complete satisfaction of all past monetary claims of the MPCA for expenditures made prior to the effective date of this Order.

Koch also agrees to reimburse the MPCA for statutorily recoverable expenses which are associated with any future MPCA activities related to the implementation of this Order. Within thirty (30) days of the end of each calendar year, the MPCA Director will submit to Koch an itemized statement of statutorily recoverable MPCA expenses for the previous year. Reimbursement for expenses incurred after the effective date of this Order shall not exceed \$30,000 per calendar year. Within sixty (60) days following receipt of the itemized statement, Koch shall pay the required sum into the Environmental Response, Compliance and Compensation Fund of the Treasury of the State of Minnesota, unless it disputes the amount claimed.

Any dispute regarding the recoverability of the MPCA's expenses shall be resolved in accordance with the provisions of Part VIII of this Order. The statutorily recoverable amounts to be paid to the MPCA under this Order shall cease to accrue on the date this Consent Order terminates.

XXIV.

Amendment of Order

This Order may only be amended by a written agreement between Koch and the MPCA.

XXV.

Covenant Not to Sue

To avoid litigation between the parties hereto and the expense that would be incurred in connection with such litigation, and to set to rest the differences existing among them based on information known to the parties as of the effective date of this Order, and for and in consideration of the satisfactory completion of the terms and conditions of this Order, the MPCA covenants not to bring any claims or other remedies, administrative, legal or equitable against Koch regarding (1) the performance of a Remedial Investigation and Feasibility Study concerning the release or threatened release of hazardous substances, pollutants or contaminants which are the subject of this Order from the portion of the Koch Site occupied by the Koch Refining Company facility in Rosemount, Minnesota; (2) the performance of a Limited Remedial Investigation concerning the release or threatened release of hazardous substances, pollutants or contaminants which are the subject of this Order from the KSAU facility; (3) the reimbursement of the MPCA's monetary claims incurred prior to the effective date of this Order with respect to its investigations of the release or threatened release of hazardous substances, pollutants or contaminants which are the subject of this Order from the Koch Site; and (4) the reimbursement of all statutorily recoverable expenses which the MPCA may incur in overseeing the implementation of this Order; except that nothing in this Order shall preclude the MPCA from exercising any

administrative, legal and equitable remedies available to the MPCA to require additional actions by Koch in the event that the implementation of the requirements of this Order are insufficient to remedy the release or threatened release of hazardous substances at the Koch Site.

This Order shall not be construed as (1) releasing Koch from responsibility or liability for development and implementation of a response action plan or for design or implementation of any permanent remedy which may be required under Minn. Stat. Ch. 115B or any other law to abate or minimize the release or threatened release of hazardous substances, pollutants or contaminants from the Koch Site or (2) releasing Koch from responsibility or liability for implementation of a full Remedial Investigation and Feasibility Study for the KSAU facility of the Koch Site. However, this Order shall not be construed as determining or assuming the need for a permanent remedy; such a remedy, and any other additional response actions, if necessary, will be the subject of a different agreement or proceeding.

XXVI.

Remedies of the Parties

The terms of this Order shall be legally enforceable by either party in a court of appropriate jurisdiction.

Nothing in this Order shall waive the MPCA's right to enforce this Order, or to take any action authorized by Minn. Stat. Ch. 115B or by any other law should Koch fail to maintain compliance with this Order.

XXVII.

Failure to Make Timely Submittals

A. For each week that Koch fails to make a Submittal to the MPCA Director in accordance with the time schedules contained in Exhibit A or Exhibit B to

this Order or any other time schedule approved or modified by the MPCA Director, Koch shall be obligated to pay into the Environmental Response, Compensation and Compliance Fund of the Treasury of the State of Minnesota the sum of Five Hundred Dollars (\$500.00).

B. Koch shall not be liable for payment under this Part if it has submitted to the MPCA Director a timely request for an extension of schedules under Part XXVIII of this Order and such request has been granted, or otherwise resolved under Part VIII or has not been acted upon by the MPCA Director.

C. Upon determination by the MPCA Director that Koch has failed to make a Submittal referenced herein, the MPCA Director shall give written notice to Koch of the failure, specifying the provision of the Order which has not been complied with. Koch shall pay the requested sum within thirty (30) days of receipt of notification from the MPCA Director that payment is due. Koch retains the right to dispute under Part VIII the factual basis for the MPCA Director's determination that a Submittal has not been made in a timely fashion. However, Koch waives any rights it may have to challenge, on legal grounds, the requirement that it make payments under this Part.

D. Payments required by this Part shall accrue from the date on which the Submittal was to have been made. Payments required by this Part shall cease to accrue when Koch delivers the required Submittal to the MPCA Director.

E. Nothing in this Part shall be construed as prohibiting or in any way limiting the ability of the MPCA to seek civil penalties available under Minn. Stat. Ch. 115B or any other law for any noncompliance with this Order except for noncompliance with the schedules for making Submittals.

XXVIII.

Extensions of Schedules

Extensions shall be granted if requests for extensions are submitted in a timely fashion and good cause exists for granting the extension. All extensions must be requested by Koch in writing. The request shall specify the reason(s) why the extension is needed. Extensions shall only be granted for such period of time as the MPCA Director or MPCA Board determines is reasonable under the circumstances. A requested extension shall not be effective until approved by the MPCA Director or MPCA Board.

The MPCA Director may extend the time schedules contained in this Order for a period not to exceed ninety (90) days. However, if an extension is needed as a result of (1) delays in the issuance of a necessary permit which was timely applied for; (2) judicial review of the issuance, non-issuance or re-issuance of a necessary permit; or, (3) review under Part VIII of this Order, the MPCA Director may extend the time schedules for a longer period. Extensions of greater than 90 days requested for reasons other than the three specified above may be granted under this Order, but only if authorized by the MPCA Board.

The burden shall be on Koch to demonstrate to the satisfaction of the MPCA Director or MPCA Board that the request for the extension has been submitted in a timely fashion and that good cause exists for granting the extension. Good cause includes but is not limited to the following and extensions shall be granted where Koch demonstrates that the reason the extension is needed is due to:

(1) Circumstances beyond the reasonable control of Koch, including delays caused by the MPCA or by labor disputes;

(2) Stoppage of work under Part X which work stoppage was not the result of any noncompliance by Koch with this Order or Exhibit A or Exhibit B;

(3) Review resulting from the good faith invocation by Koch of the resolution of disputes provisions of Part VIII of this Order, which review results in delays in implementation of this Order making it not feasible for Koch to meet the required schedules; and,

(4) Delays which are directly attributable to any changes in permit terms or conditions or refusal to grant a permit needed to implement the requirements of this Order, as contemplated under Part IX of this Order, if Koch filed a timely application for the necessary permit.

Koch may challenge the reasonableness of a decision by the MPCA Director or MPCA Board to disallow a request for an extension; however, such challenges shall only be made in the context of an action brought by the MPCA against Koch for payments which the MPCA alleges to be owing to it under this Order for Koch's failure to meet deadlines required by this Order.

XXIX.

Conveyance of Title

No conveyance of title, easement, or other interest in the any portion of the Koch Site subject to investigation, study or other actions under this Order shall be consummated by Koch without provision for Koch or the purchaser to carry out the terms of this Order. Koch shall make all reasonable efforts to notify the MPCA Director by registered mail at least thirty (30) days prior to the conveyance of any interest in the Koch Site and of the enforceable provisions made for the continued implementation of this Order.

XXX.

U.S. EPA

This Order is entered into under the provisions of ERLA, Minn. Stat. ch. 115B. The U.S. Environmental Protection Agency (EPA) is not a party to this Order. The parties understand and agree that the MPCA is not an agent of the EPA and has no specific authority to interpret the requirements of CERCLA on behalf of the EPA.

Having stated its lack of authority to interpret CERCLA on behalf of the EPA, the MPCA also states its opinion that, with respect to the releases and threatened releases which are the subject of this Order, compliance with this Order also is compliance with CERCLA and the implementing regulations under CERCLA.

XXXI.

Successors

This Order shall be binding upon Koch, its successors and assigns, and upon the MPCA, its successors and assigns.

XXXII.

Termination

The provisions of this Order shall be deemed satisfied and terminated upon approval by the MPCA Director of the Limited Remedial Investigation for the KSAU portion of the Koch Site and the Feasibility Study which Koch is required to prepare under this Order; unless N-Ren commits, to the satisfaction of the MPCA Director to undertake the Limited Remedial Investigation (as provided in Part VI), in which case the provisions of this Order shall be deemed satisfied and terminated upon approval by the MPCA Director of the Feasibility Study.

XXXIII.

Effective Date

This Order is effective upon the date that the MPCA executes this Order.

BY THEIR SIGNATURES HEREON, THE UNDERSIGNED REPRESENT
THAT THEY HAVE AUTHORITY TO BIND THE PARTIES THEY
REPRESENT, THEIR AGENTS, CONTRACTORS, AND SUBSIDIARIES

IT IS SO AGREED:

Koch Refining Company	Title	Date
	Title	Date

IT IS SO ORDERED:

Chairperson, Minnesota Pollution Control Agency	Date
Director, Minnesota Pollution Control Agency	Effective Date

Exhibit A

REMEDIAL INVESTIGATION AND FEASIBILITY STUDY - KOCH REFINING COMPANY REFINERY UNIT

I. INTRODUCTION

Parts VI. and VII. of the Response Order By Consent (Order), to which this Exhibit is appended, require Koch Refining Company (Koch) to conduct a Remedial Investigation and Feasibility Study (RI/FS) at the portion of the Koch Site which is occupied by the Koch Refining Company (the Site). This Exhibit does not include the limited remedial investigation work to be performed at the portion of the Koch Site occupied by the Koch Refining Company Sulfuric Acid Unit (KSAU). This Exhibit sets forth the requirements for completing the RI/FS at the Site and is appended to and made an integral and enforceable part of the Order. As used in this Exhibit, the phrase the Site does not include the property occupied by KSAU.

II. PREPARATION AND REVIEW OF SUBMITTALS

Koch shall submit to the Minnesota Pollution Control Agency Director (MPCA Director) all reports, work plans, well placement and construction plans, quality assurance project plan, and other submittals required by this Exhibit. The review and approval, modification, or rejection of all submittals shall be governed by Part VIII. and IX. of the Order. The Site safety and security plans described in Part IV of this Exhibit do not require MPCA Director approval before implementation. Review and modification of the Evaluation Report described in Part V., Task A.1. shall be governed by the provisions of Part V., Task A.1. below.

III. RETAIN CONSULTANT

Within 15 days of the effective date of the Order, Koch shall retain a consultant(s) qualified to undertake and complete the requirements of this Exhibit and shall notify the MPCA Project Leader of the name of that consultant(s).

IV. SITE SECURITY AND SAFETY PLANS

Koch shall prepare and submit to the MPCA Director for comment (1) a Site security plan to limit and control the general public's access to the Site and (2) a Site safety plan to protect the health and safety of personnel involved in the RI/FS.

The Site security plan shall be submitted to the MPCA Director within forty-five (45) days of the effective date of the Order.

The Site safety plan shall be submitted at the same time that the proposed remedial investigation is submitted, pursuant to Part V., below. At a minimum, the Site safety plan shall incorporate and be consistent with the requirements of:

1. Section 111(c)(6) of CERCLA;
2. EPA Order 1440.3 -- Respiratory Protection;
3. EPA Order 1440.2 -- Health and Safety Requirements for Employees Engaged in Field Activities;
4. EPA Occupational Health and Safety Manual;
5. OSHA Requirements (29 CFR 1910 and 1926);
6. Interim Standards Operating Safety Guide (Revised September, 1982) by the Office of Emergency and Remedial Response.

Site security and safety are the responsibility of Koch. The MPCA Director may comment on the Site security and safety plans but will neither approve nor disapprove those plans.

Within 90 days of the effective date of the Order, Koch shall implement the Site security plan, taking into account the comments of the MPCA Director, if any. Koch shall implement the Site safety plan, taking into account the comments of the MPCA Director, if any, during the implementation of the Remedial Investigation, conducted pursuant to Part V., below.

V. REMEDIAL INVESTIGATION

Koch shall design and implement a Remedial Investigation (RI) which accomplishes the purposes and meets the requirements of this Part. The purpose of the RI is to: (1) define the extent and magnitude of soil and ground water contamination at the Site; (2) define the hydrology and geology of the contaminated area; and (3) provide information and data needed for the selection and implementation of Response Actions at the Site, if necessary. The requirements of the RI are set forth in the Tasks below.

Koch shall identify and propose methods in the quarterly reports (submitted pursuant to Part XII. of the Order) for any necessary additional RI activities not included in the RI Work Plan as approved. If any additional RI activities will adversely affect work scheduled through the end of the upcoming quarter or will require significant revisions to the RI Work Plan as approved, the MPCA Project Leader shall be notified immediately of the situation followed by a written explanation within ten (10) days of the initial notification.

Task A. Submit an Evaluation Report, Proposed Remedial Investigation Work Plan and Quality Assurance Project Plan

Within 60 days of the effective date of the Order, Koch shall submit for MPCA Director review and approval, modification or rejection an Evaluation Report, a Proposed Remedial Investigation Work Plan (RI Work Plan) and a Quality Assurance Project Plan (QAPP).

The Evaluation Report shall contain the information set forth in Task A.1. below. If the Evaluation Report does not meet the requirements of Task A.1. below, the MPCA Director will return it within ten (10) days for modification by Koch. Koch shall, within ten (10) days of receipt of MPCA Director comments, resubmit the modified Evaluation Report.

The Proposed RI Work Plan shall contain the information set forth in Task A.2. below. The QAPP shall contain the information set forth in Task A.3. below.

1. Evaluation Report

Information in the refinery expansion EIS and the RCRA Part B permit application for the land treatment facility may be used or referenced by, name of document and page number, to supply the following information:

a. Site background

The Evaluation Report shall include a detailed explanation of the operational history, location, pertinent area boundary features, general physiography, hydrology, stratigraphy, and geology of the Site. In addition, the Evaluation Report shall include a detailed discussion of all past activities related to the release or threatened release and disposal of hazardous substances, pollutants or contaminants at the Site.

b. Topographic survey

The Evaluation Report shall include Site maps using a one inch = 250 feet (maximum) scale and a ten foot (maximum) contour interval. Surface water features, buildings, process areas, storage tanks, well locations, forested areas, oily water sewer, paved areas, pipelines (subsurface) and impoundments shall be shown. The maps shall be of sufficient detail and accuracy to locate all current or proposed future RI work at the Site. The maps shall include all properties owned in whole or in part in Township 115N, Range 19W, Section 13 and 24, and Township 115N, Range 18W, Sections 18 and 19.

c. Source Summary

A source survey program shall be conducted to define all areas related to the Site that have functioned as sources or are functioning as sources of ground water contamination. This program shall be structured to divide the Site facilities into the following categories:

- (1) Crude or raw materials storage areas;
- (2) Process areas;
- (3) Product storage areas;
- (4) Loading facilities;
- (5) Waste or by-product treatment, storage and disposal areas.

The analyses given to each of these areas shall include:

1. Descriptions of the solid and liquid materials utilized, produced, treated, stored or disposed in that portion of the facility operation. Those descriptions shall utilize chemical and elemental descriptions rather than trade names or non-specific descriptions.
2. A summary of reported and unreported spills or discharges for each area stating: date, volume, material, and mitigative actions taken, if any.

d. History of remedial or removal actions

The Evaluation Report shall include a summary of any previous response actions conducted at the Site. This summary shall include field inspections, sampling surveys, cleanup activities, and other technical investigations as well as any removal or remedial action taken at the Site.

2. Proposed Remedial Investigation Work Plan

Koch shall submit a proposed RI Work Plan which, upon implementation will meet the purposes of and requirements of this Part. All RI related activities shall be consistent with the Site safety and security plan and the refinery safety and security plan.

At a minimum, the proposed RI Work Plan shall include proposed methodologies to accomplish the following RI activities and shall also include proposed dates and/or time intervals for initiation and completion of each of the following RI activities:

(A) Hydrologic Investigation

A hydrologic investigation shall be proposed that will result in:

1. Definition of the ground water flow patterns and directions, both horizontal and vertical, and
2. Definition of seasonal variations in those patterns and directions, and
3. Definition of contaminant concentrations and their variations.

To accomplish these goals several activities are required:

- a. An adequate number of wells or piezometers shall be installed to clearly define ground water flow conditions. Ground water monitoring wells shall be installed to define conditions upgradient and downgradient of suspected source areas. At a minimum, water table monitoring wells shall be installed at the locations shown in Attachment 2. The elevations of all wells utilized in the investigation shall be surveyed to a common reference point. Water elevations in all wells shall be measured as specified in Part (C) below.
- b. Existing wells shown in Attachment 3 must be evaluated for integrity and depth of completion.
- c. All new monitoring wells and production wells 1, 3, 5, and 8 shall be sampled one time. These samples shall be analyzed using GCMS techniques for compounds listed in Attachment 1 to this Exhibit. The ten highest peaks not listed on Attachment 1 shall also be identified.
- d. Tests shall be performed to determine the hydraulic properties of the water bearing formations near and under the Site. Estimates shall be made of the ground water flow directions and rates in the horizontal and vertical directions.

(B) Soils Investigation

A soils investigation shall be proposed, the purpose of which is to define the sources which are contributing or have the potential to contribute to ground water contamination identified at the Site. At a minimum, this shall include a boring to bedrock at the location shown in Attachment 2. Soil sampling including split spoon sampling, test trenching or other methods shall be utilized to obtain soil samples for analyses. The program that will be used to analyze the soil samples shall be described in the RI Work Plan.

(C) Routine Monitoring

A routine ground water monitoring program shall be proposed, which will have a minimum initial frequency of quarterly sampling for ground water quality and monthly for water levels. After the initial sampling of monitoring wells, Koch may propose a reduced list of parameters and a reduced frequency of monitoring for the routine long-term ground water monitoring program. This shall include consideration of using enhanced GC/MS to provide lower detection limits for PAH compounds in wells representative of the various aquifers under the Site.

3. Quality Assurance Project Plan

Koch shall submit a proposed QAPP to be utilized in implementing the RI Work Plan. The proposed QAPP shall be prepared so as to be consistent with the requirements of the U.S. EPA's Interim Guidelines and Specifications for preparing the Quality Assurance Project Plan (QAMS-005/80).

Task B. Conduct Remedial Investigation

Koch shall continue to conduct the RI in accordance with the methods and time schedules set forth in the RI Work Plan and QAPP as approved by the MPCA Director. The RI shall be conducted in accordance with all Federal, State and local laws, rules, regulations and ordinances including but not limited to the Minnesota Department of Health Water Well Construction Code, Minn. Rules Ch. 4725, for the installation of any ground water monitoring wells.

Task C. Report Results of Remedial Investigation

Within 270 days of receipt of notification of the MPCA Director's approval or modification of the RI Work Plan and QAPP, made pursuant to Part V., Task B, above, Koch shall prepare and submit to the MPCA Director a report (Final Report) detailing the data and results of the RI. The Final Report shall organize and present all data, analytical results, boring logs and test results. Further, the Final Report shall include a detailed description of the following:

1. Nature and extent of the release or threatened release

Koch shall include in the Final Report a description of the following:

a. The general types, physical states and approximate amounts of hazardous substances or substances identified in Part V., Task A.1.c. disposed of at the Site;

b. Any medium (e.g., ground water, surface water, soils, air) affected by the hazardous substances or substances identified in Part V., Task A.1.c. disposed of at the Site;

c. The pathways, if any, (e.g., leachate, multi-aquifer wells, runoff) by which contamination may reach the media;

d. The sources of the release;

e. The extent and magnitude of hazardous substances contamination, if any, in the soil on the Site as revealed by the test results from the investigation;

f. The extent and magnitude of hazardous substances or substances identified in Part V., Task A.1.c. contamination, if any, in the ground water beneath and around the Site as revealed by the test results from the investigation;

g. The hydrogeologic conditions beneath and around the Site;

h. Any human or environmental exposure on the Site from hazardous substances disposed of on the Site; and,

i. The extent of impact of ground water contamination, if any, on the use of ground water at the Site.

As part of the RI Final Report, Koch shall recommend, for MPCA Director review and approval, modification or rejection, whether an Alternatives Report is reasonable and necessary and identify those releases or threatened releases that the report should address. The MPCA Director shall review the recommendation and inform Koch of the releases or threatened releases, if any, that the MPCA Director determines shall be addressed in the Alternatives Report.

Task D. Approval of the Final Report

The MPCA Director shall review and approve, propose modification, or reject the Final Report. The MPCA Director shall approve the Final Report if it is substantially in accordance with the requirements set forth in Task C of this Part.

If the MPCA Director rejects the Final Report, the MPCA Director shall specify the deficiencies and reasons for the rejection. If Koch does not exercise its rights under Part IX. of the Order, Koch shall correct the deficiencies, and resubmit the Final Report to the MPCA Director within sixty (60) days of receipt of the notification of rejection.

VI. FEASIBILITY STUDY

The purpose of the Feasibility Study (FS) is to provide a detailed evaluation of the feasibility and effectiveness of implementing alternative Response Actions at the Site. Koch shall conduct the FS in accordance with the National Oil and Hazardous Substance Contingency Plan, 40 CFR, Section 300.68, (f.), (g.), (h.), and (i.). The FS shall contain sufficient information and analyses for the MPCA Director to evaluate the appropriate extent of remedy. The FS shall use and build upon the information generated by the RI and shall consist of the following Tasks.

Task A. Alternatives Report

Within thirty (30) days of receipt of notification of the MPCA Director's acceptance of the Final Report pursuant to Part V., Task D above, Koch shall develop and submit to the MPCA Director for approval, proposed modification or rejection, an Alternatives Study Work Plan. The Alternatives Study Work Plan shall include:

a) A list of alternative response actions that Koch recommends are technically feasible and, upon implementation, would effectively mitigate and minimize damage to and provide sufficient protection of public health, welfare, and the environment. These recommended alternative response actions, as approved or modified by the MPCA Director, will be evaluated in the Alternatives Report.

b) The approach that will be used to evaluate the alternative response actions.

c) A discussion of the compliance boundaries and the water quality criteria that Koch recommends should be considered in designing and evaluating the alternative response actions.

Within 120 days of receipt of notification of the MPCA Director's acceptance of the Alternatives Study Work Plan pursuant to Part VI. Task A. above, Koch shall develop and submit to the MPCA Director an Alternatives Report. The Alternatives Report shall provide an identification and evaluation of alternative response actions contained in the approved Alternatives Study Work Plan. The purpose of the Alternatives Report is to enable the MPCA Director to reject any possible alternate response actions which are clearly not feasible or effective. (The alternative response actions to be evaluated in the Alternatives Report are referred to below as the "evaluated alternatives.")

For each evaluated alternative, the following shall be addressed and presented in the Alternatives Report:

1. Cost

A preliminary estimate of the capital, operation and maintenance costs associated with installing or implementing each evaluated alternative.

2. Environmental Effects

A general discussion of the expected adverse effects which each evaluated alternative may have on the environment;

3. Effectiveness

A preliminary analysis of the extent to which each evaluated alternative is expected to effectively abate or minimize the release or threatened release and/or minimize the threat of harm to the public health, welfare and the environment.

4. Technical Feasibility, Safety and Implementability

A preliminary analysis of the technical feasibility, safety and implementability of each evaluated alternative both in relation to the location and conditions of the release or threatened release and in relation to the reliability of the technologies which could be employed to implement the evaluated alternative.

5. Identification of Technologies

An explanation of the various technologies which may be employed to implement each of the evaluated alternatives and a summary of the effectiveness, reliability, past success and availability of each specified technology.

Koch shall include in the Alternatives Report its recommendation and rationale regarding which evaluated alternatives should not be given further consideration for implementation at the Site. Koch shall base its recommendation on the extent to which each of the evaluated alternatives meets each of the three response action objectives and four criteria set forth in Task B below.

Task B. Review of Evaluated Alternatives

Upon receipt of the Alternatives Report submitted pursuant to Part VI., Task A., above, the MPCA Director will review the evaluated alternatives and will reject any of the evaluated alternatives that are clearly not feasible or effective. The MPCA Director will notify Koch of the results of the MPCA Director's review within 30 days of receipt of the Alternatives Report. The MPCA Director may require that a Detailed Analysis Report be prepared for one or more of the evaluated alternatives or may determine that no further investigation is required to select the response action(s) that should be implemented at the Site.

The purpose of implementing any response action at the Site is:

(1) to protect the public health, welfare and the environment; (2) to meet the requirements of Section 300.68, (f.), (g.), (h.), and (i.) of the National Oil and Hazardous Substances Contingency Plan; and (3) to meet the requirements of any other applicable Federal or State law.

In determining whether to reject an evaluated alternative, the MPCA Director will consider the extent to which each of the evaluated alternatives meets each of the objectives stated above and will use the following criteria:

1. Cost

Evaluated alternatives whose estimated costs exceed those of other evaluated alternatives in relation to the benefits which the evaluated alternatives will produce will be eliminated, unless Koch explicitly desires to further consider the evaluated alternative.

2. Environmental effects

Evaluated alternatives that present significant adverse environmental effects will be excluded from further consideration.

3. Effectiveness

Evaluated alternatives that do not satisfy the response action objectives and do not contribute significantly to the protection of public health, welfare or the environment will be rejected. On-site hazardous substance control alternatives must achieve adequate control of the hazardous substances in terms of abating or minimizing the release or threatened release. Off-site alternatives must minimize or mitigate the threat of harm to public health, welfare or the environment, or they will be excluded from further consideration.

4. Technical Feasibility, Safety and Implementability

Evaluated alternatives must be feasible for the location and conditions of the release and represent a reliable means of addressing the problem. Evaluated alternatives that rely on unproven technologies will generally be excluded from further consideration. Evaluated alternatives that are not reliable will be excluded from further consideration.

Task C. Detailed Analysis Report

Within 120 days of receipt of the MPCA Director's notification of review of the Alternatives Report made pursuant to Part VI., Task B above and notification that the detailed analysis of one or more evaluated alternatives is necessary, Koch shall prepare and submit a Detailed Analysis Report to the MPCA Director on all the evaluated alternatives not rejected by the MPCA Director. The Detailed Analysis Report shall present the following elements for the remaining evaluated alternatives (i.e., evaluated alternatives that are not rejected).

1. Detailed Description.

At a minimum, a detailed description shall include for each remaining evaluated alternative:

- a. a description of the appropriate treatment and disposal technology for each remaining evaluated alternative;
- b. a description of the special engineering considerations required to implement each remaining evaluated alternative (e.g., for a pilot treatment facility, any additional studies that may be needed to proceed with final response action design);
- c. a description of operation, maintenance, and monitoring requirements for each remaining evaluated alternative;
- d. a description of off-site disposal needs and transportation plans for each remaining evaluated alternative;
- e. a description of temporary storage requirements for each remaining evaluated alternative;
- f. a description of safety requirements associated with implementing each remaining evaluated alternative, including both on-site and off-site health and safety considerations;
- g. a description of how any of the other remaining evaluated alternatives could be combined with this evaluated alternative and how any of the combinations could best be implemented to produce significant environmental improvements or cost savings; and
- h. a description/review of on-site or off-site treatment or disposal facilities for each remaining evaluated alternative which could be utilized to ensure compliance with applicable requirements of the Resource Conservation and Recovery Act, the MPCA hazardous waste rules, and the U.S. and Minnesota Departments of Transportation rules.

2. Environmental Assessment

At a minimum, an environmental assessment shall include an evaluation of the environmental effects, an analysis of measures to mitigate the adverse effects, the physical or legal constraints, and the compliance with Federal and State regulatory requirements for each remaining evaluated alternative.

Each remaining evaluated alternative shall be assessed in terms of the extent to which it will mitigate damage to, or protect public health, welfare and the environment, in comparison to the other remaining evaluated alternatives.

3. Cost Analysis

A cost analysis shall include a breakdown of the present value capital costs and annualized capital costs of implementing each remaining evaluated alternative (and each phase of each remaining evaluated alternative) as well as the present value annual operating and maintenance costs. The costs shall be presented as both a total cost and an equivalent annual cost.

4. Chosen Evaluated Alternative(s) and Conceptual Design

Koch shall include in the Detailed Analysis Report its determination of which remaining evaluated alternative (or combination of remaining evaluated alternatives) should be installed or implemented at the Site. In general, Koch should recommend those alternatives which are the lowest cost alternatives, that are technologically feasible and reliable which effectively mitigate and minimize damage to and provide sufficient protection of public health, welfare, and the environment.

Koch shall include in the Detailed Analysis Report a conceptual design for the recommended evaluated alternative (or combination). The purpose of preparing a conceptual design is to illustrate all aspects of the recommended evaluated alternative (or combination) in sufficient detail to enable the MPCA Director to fully evaluate the recommended evaluated alternative (or combination). The conceptual design for the recommended evaluated alternative (or combination) shall include, but not be limited to, the elements listed below. Information which is to be included in the conceptual design, and which has been prepared earlier pursuant to other parts of this Exhibit, may be included by reference.

- A conceptual plan view drawing of the overall site, showing general locations for project actions and facilities.
- Conceptual layouts (plan and cross sectional views where required) for the individual facilities, other items to be installed, or actions to be implemented.
- Conceptual design criteria and rationale.
- A description of types of equipment required, including approximate capacity, size and materials of construction.
- Process flow sheets, including chemical consumption estimates and a description of the process.
- An operational description of process units or other facilities.
- A description of unique structural concepts for facilities.
- A description of operation and maintenance requirements.
- A discussion of potential construction problems.
- Right-of-way requirements.

- A description of technical requirements for environmental mitigation measures.
- Additional engineering data required to proceed with design.
- A discussion of permits that are required pursuant to environmental and other statutes, rules and regulations.
- Order-of-Magnitude implementation cost estimate.
- Order-of-Magnitude annual O&M cost estimates.
- Estimated implementation schedule.

Task D. Approval of Detailed Analysis Report

The MPCA Director shall review and approve, propose modification or reject the Detailed Analysis Report based on the objectives and criteria set out in Task B of this Part. In general, the MPCA Director should accept those alternatives which are the lowest cost alternatives, that are technically feasible and reliable, which effectively mitigate and minimize damage to and provide adequate protection of public health, welfare and the environment. The MPCA Director's approval shall not be unreasonably denied.

If the MPCA Director approves the Detailed Analysis Report, the MPCA Director shall so notify Koch.

The MPCA Director may reject the Detailed Analysis Report for either or both of the following two reasons: (1) inadequate performance of Tasks C.1., C.2. and/or C.3. and (2) presentation under Task C.4. of an unacceptable recommended evaluated alternative and/or conceptual design that will not achieve the purposes of this Order.

If the MPCA Director rejects the Detailed Analysis Report, he shall notify Koch in writing and state in detail the reasons for his rejection and specify

those actions which should be taken, in his judgement, to make the report acceptable to him. Koch shall respond to the notice within 60 days by resubmission of a new report or by pursuing any other remedy available to it under this Order or applicable law.

The MPCA Director shall also determine if a response action is reasonable and necessary to protect the public health, welfare and environment.

ATTACHMENT 1 -- PARAMETER LIST FOR KOCH REFINING COMPANY SITE

PARAMETER	ANALYTICAL PROCEDURE (EPA Method)
METALS	
Antimony	204.2
Arsenic	206.2
Barium	208.2
Beryllium	200.7
Cadmium	200.7
Chromium	200.7
Cobalt	219.2
Copper	200.7
Mercury	245.1
Nickel	200.7
Selenium	270.2
Vanadium	286.2
VOLATILE ORGANICS	
Acrolein	624
Acrylonitrile	624; poor recovery
Benzene	624
Carbon Disulfide	624 *
Carbon Tetrachloride	624
Chlorobenzene	624
Chloroform	624
Chloromethane	624
1,2-Dibromoethane (Ethylene Dibromide)	624 *
1,1-Dichloroethane	624
1,2-Dichloroethane	624
1,1-Dichloroethylene	624
trans-1,2-Dichloroethene (1,2-Dichloroethylene)	624
Dichloroethane	624
Dichloropropane	624
Methyl Ethyl Ketone (1-Methyl Ethyl Ketone)	624; poor recovery *
Styrene	624 *
Tetrachloroethanes	624
Tetrachloroethylene	624
Toluene	624
Trichloroethylene (Trichloroethene)	624
1,1,1-Trichloroethane	624
1,1,2-Trichloroethane	624

ATTACHMENT 1 -- PARAMETER LIST FOR KDCM REFINING COMPANY SITE

PARAMETER

ANALYTICAL
PROCEDURE
(EPA Method)

GC/MS ACID FRACTION

p-Chloro-o-cresol	625
2-Chlorophenol	625
o-Cresol	625 *
m/p-Cresol	625; coelutes with isomer *
2,4-Dimethylphenol	625
4,6-Dinitro-o-phenol (4,6-Dinitro-o-cresol)	625 *
2,4-Dinitrophenol	625
2-Nitrophenol	625
4-Nitrophenol	625
Pentachlorophenol	625
Phenol	625
2,4,6-Trichlorophenol	625

GC/MS BASE NEUTRAL FRACTION

Anthracene	625
Benz(c)acridine	NO; no standard
Benz(a)anthracene	625
Benzidine	625; poor recovery
Benzo(b)fluoranthene	625; coelutes with isomer
Benzo(k)fluoranthene	625; coelutes with isomer
Benzo(a)pyrene	625
Bis(2-chloroethyl) ether	625
Bis(2-chloroisopropyl) ether	625
Bis(2-ethylhexyl)phthalate	625
Butyl Benzyl Phthalate	625 *
2-Chloronaphthalene	625
Chrysene	625
Dibenz(a,h)acridine	NO; no standard
Dibenz(a,j)acridine	625 *
Dibenz(a,h)anthracene	625
7H-Dibenzof(c,g)carbazole	NO; no standard
Di-n-butyl phthalate	625
1,2-Dichlorobenzene	624, 625
1,3-Dichlorobenzene	624, 625
1,4-Dichlorobenzene	624, 625
Diethyl Phthalate	625

ATTACHMENT 1 -- PARAMETER LIST FOR KOCH REFINING COMPANY SITE

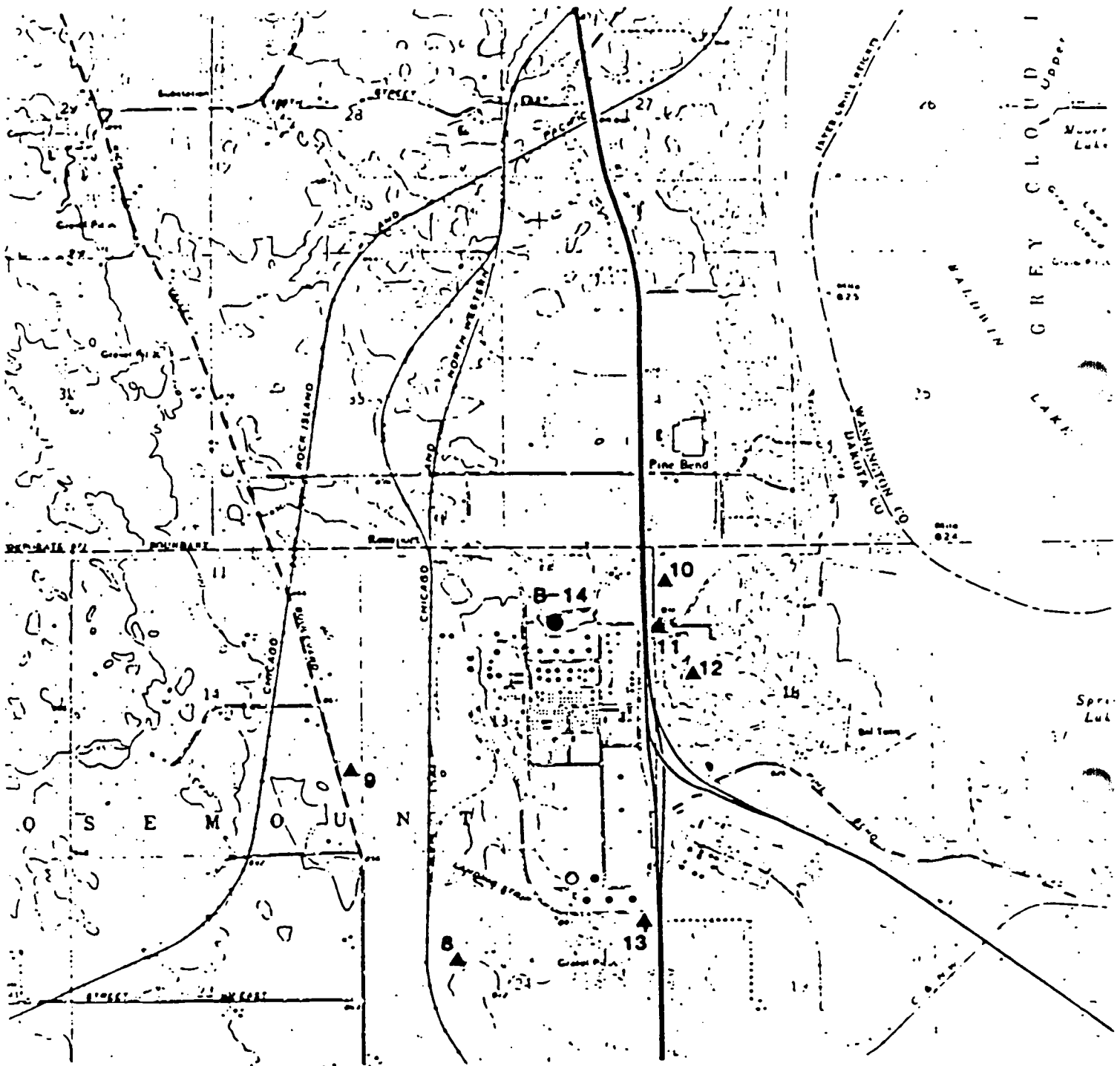
PARAMETER	ANALYTICAL PROCEDURE (EPA Method)
7,12-Diethyl Benz(a)anthracene	625 *
Diethyl Phthalate	625
2,6-Dinitrotoluene	625
2,4-Dinitrotoluene	625
Di-n-octyl Phthalate	625
1,2-Biphenylhydrazine	625 *
Fluoranthene	625
Indene	625 *
Ideno(1,2,3-cd)pyrene	625
Methyl Benz(c)phenanthrene	NQ; no standard
3-Methylcholanthrene	625 *
Methyl Chrysene	NQ; no standard
Naphthalene	625
5-Nitroacenaphthene	NQ; no standard
Nitrobenzene	625
n-Nitrosodiethylamine	625 N.Q. No Standard
Phenanthrene	625
Pyrene	625
Quinoline	625 *
1,2,4-Trichlorobenzene	625
Triethyl Benz(a)anthracene	NQ; no standard

NOTES:

* Compounds that have not been validated for EPA methods 624/625.

NQ Compounds that can be determined to be present but cannot be quantified.

Synonyms are shown in paranthesis.



Base Map: USGS 7.5 Minute Inver Grove Heights Quadrangle

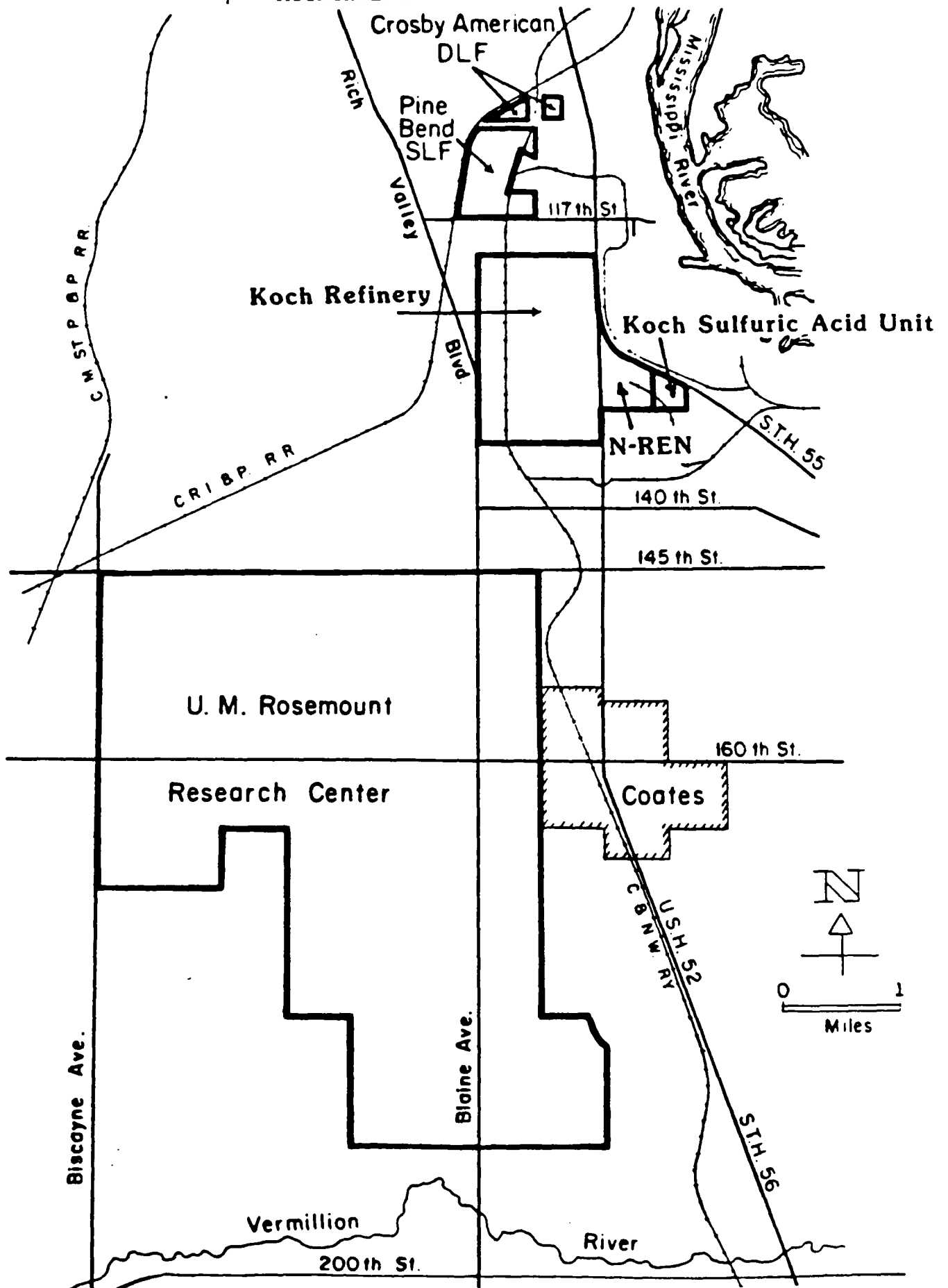
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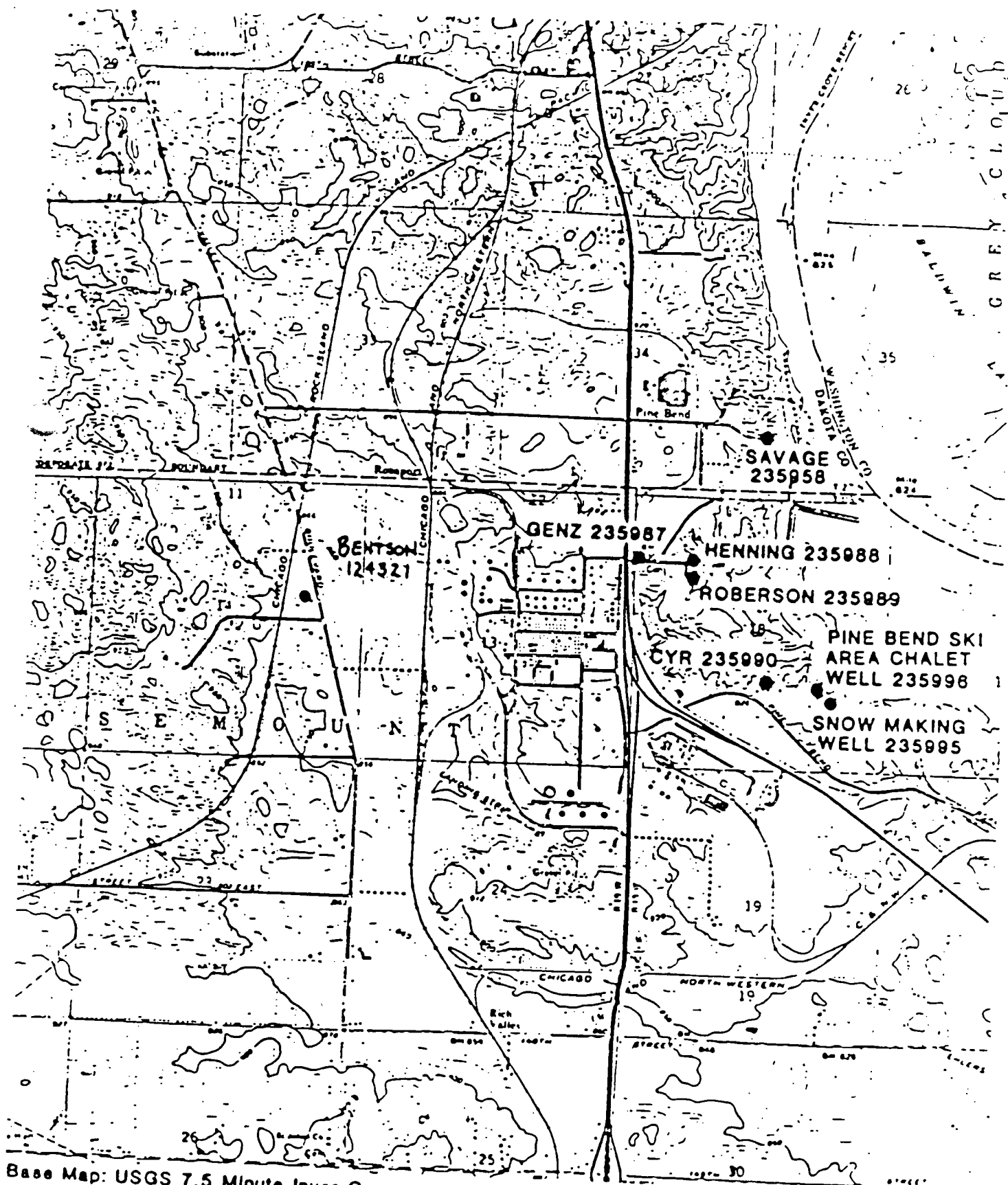


- Soil Borings
- ▲ Monitoring Wells

Attachment 2
 MONITORING WELL & SOIL BORING LOCATIONS
 KOCH REFINING CO.

ATTACHMENT 2





Base Map: USGS 7.5 Minute Inver Grove Heights Quadrangle



Attachment 3
 EXISTING WELLS
 KOCH REFINING CO.
 Inver Grove Heights & Rosemount, Minnesota

Exhibit B

LIMITED REMEDIAL INVESTIGATION - KOCH REFINING COMPANY SULFURIC ACID UNIT

I. INTRODUCTION

Parts VI. and VII. of the Response Order by Consent (Order), to which this Exhibit is appended, requires Koch Refining Company (Koch) to conduct a Limited Remedial Investigation at the portion of the Koch Site which is occupied by the Koch Refining Company Sulfuric Acid Unit (KSAU Site). This Exhibit does not include the work to be performed at the portion of the Koch Site occupied by the Koch Refinery. This Exhibit sets forth the requirements for completing the Limited Remedial Investigation at the KSAU Site and is appended to and made an integral and enforceable part of the Order. As used in this Exhibit, the phrase KSAU Site does not include the property occupied by the Koch Refinery.

Koch shall complete the Limited Remedial Investigation of the KSAU Site in accordance with the requirements and time schedules set forth in this Exhibit B unless, within sixty (60) days of the effective date of the Order, N-ReN commits, in a manner acceptable to the MPCA Director, to take the actions specified in this Exhibit B in accordance with the conditions and schedules set forth in this Exhibit B. If N-ReN commits, in a manner acceptable to the MPCA Director, to take the actions specified, the requirements of Exhibit B shall be suspended and Koch shall not be required under this Order to make the Limited Remedial Investigation set forth in this Exhibit B.

II. PREPARATION AND REVIEW OF SUBMITTALS

Koch shall submit to the Minnesota Pollution Control Agency Director (MPCA Director) all reports, work plans, well placement and construction plans, quality assurance project plan, and other submittals required by this Exhibit. The review and approval, modification, or rejection of all submittals shall be governed by Parts VIII. and IX. of the Order.

III. RETAIN CONSULTANT

Within 45 days of the effective date of the Order, Koch shall retain a consultant(s) qualified to undertake and complete the requirements of this Exhibit and shall notify the MPCA Project Leader of the name of that consultant(s).

IV. PRELIMINARY REMEDIAL INVESTIGATION

Koch shall design and implement a Limited Remedial Investigation (LRI) which accomplishes the purposes and meets the requirements of this Part. The purpose of the LRI is to: (1) determine if ground water contamination is resulting from the release of the hazardous substances, pollutants or contaminants in Attachment 1 at the KSAU Site; and (2) define the hydrology and geology in the area of the KSAU Site. The requirements of the LRI are set forth in the Tasks below.

Task A. Proposed Limited Remedial Investigation Work Plan and Quality Assurance Project Plan

Within 30 days of the effective date of the Order, Koch shall submit for MPCA Director review and approval, modification or rejection a Proposed Limited Remedial Investigation Work Plan (LRI Work Plan) and a Quality Assurance Project Plan (QAPP).

The Proposed LRI Work Plan shall contain the information set forth in Task A.1. below. The QAPP shall contain the information set forth in Task A.2. below.

1. Proposed Limited Remedial Investigation Work Plan

Koch shall submit a proposed LRI Work Plan which, upon implementation will meet the purposes and requirements of this Part. At a minimum, the proposed LRI Work Plan shall include proposed methodologies to accomplish the following

LRI activities and shall also include proposed dates and/or time intervals for initiation and completion of each of the following LRI activities:

(A) Hydrologic Investigation

A hydrologic investigation shall be proposed that will result in:

1. Definition of the ground water flow patterns and directions,
2. Definition of variations in those patterns and directions, and
3. Definition of contaminant concentrations and their variations.

To accomplish these goals several activities are required:

- a. The wells listed below and illustrated in Attachment 2 shall be inspected to determine if water levels can be measured under the existing conditions. If not, they shall be modified to allow routine water level measurements if such modifications are reasonably possible. The specified measuring points on all of the wells listed below shall be surveyed to a common reference point.

- 1) Cyr (#235990)
- 2) Pine Bend Ski Area Chalet Well (#235996)
- 3) Snow Making Well (#235995)
- 4) Dow Well (#208409)
- 5) Koch Sulfuric Acid Unit Production Well #1
- 6) Koch Sulfuric Acid Unit Production Well #2

Numbers in () are Minnesota Unique Well Numbers

- b. All wells listed in a. above shall be sampled one time for the compounds and parameters listed in Attachment 1 to this Exhibit.
- c. Water level elevations shall be measured monthly for a minimum of three months.

2. Quality Assurance Project Plan (QAPP)

Koch shall submit a proposed QAPP to be utilized in implementing the LRI Work Plan. The proposed QAPP shall be prepared so as to be consistent with the requirements of the U.S. EPA's Interim Guidelines and Specifications for preparing the Quality Assurance Project Plan (QAMS-005/80).

Task B. Conduct Preliminary Remedial Investigation

Within 30 days of receipt of notification of the MPCA Director's approval or modification of the LRI Work Plan and the QAPP, Koch shall initiate the LRI. Koch shall conduct the LRI in accordance with the methods and time schedules set forth in the LRI Work Plan and QAPP as approved by the MPCA Director. The LRI shall be conducted in accordance with all Federal, State and local laws, rules, regulations and ordinances including but not limited to the Minnesota Department of Health Water Well Construction Code, Minn. Rules Ch. 4725, for the installation of any ground water monitoring wells.

Task C. Report Results of Limited Remedial Investigation

Within 180 days of receipt of notification of the MPCA Director's approval or modification of the LRI Work Plan and QAPP, made pursuant to Part IV., Task B, above, Koch shall prepare and submit to the MPCA Director a report (LRI Report) detailing the data and results of the LRI. The LRI Report shall organize and present all data, analytical results and test results. Further, the LRI shall include a detailed description of the following:

1. Nature and extent of the release or threatened release

Koch shall include in the LRI Report a description of the following:

- a. The extent and magnitude of contamination in the ground water beneath and around the KSAU Site as shown by the available data.
- b. The hydrogeologic conditions beneath and around the KSAU Site; and,
- c. Any human or environmental exposure as shown by the available data.

2. Analysis of data in relation to additional remedial investigative actions

Koch shall include in the LRI Report recommendations for additional testing, data collection or other work if necessary to:

1. Define ground water flow patterns and directions in the contaminated area.
2. Define variations in those patterns and directions, and,
3. Define contaminant concentrations and their variations.

Task D. Approval of the LRI Report

The MPCA Director shall review and approve, modify, or reject the LRI Report. If the MPCA Director rejects the LRI Report, the MPCA Director shall specify the deficiencies and reasons for the rejection. If Koch does not exercise its rights under part IX. of the Order, Koch shall correct the deficiencies, and resubmit the LRI Report to the MPCA Director within sixty (60) days of receipt of the notification of rejection.

Attachment 1 - Parameter List for Koch Refining Company Sulfuric Acid Unit

Aluminum
Arsenic
Calcium
Chloride
Chromium, Total
Chromium, Hexavalent
Copper
Iron
Lead
Potassium
Sodium
Sulfate
Zinc
Ammonia Nitrogen
Nitrate Nitrogen
Alkalinity as CaCO_3
Hardness as CaCO_3
Specific Conductivity
pH
Total Dissolved Solids